

Date: Monday, 2/27/2006 4:21:17 PM
 User: Kim Johnston

Process Sheet

Customer :	CU-DAR001 Dart Helicopters Services	Drawing Name :	212/205 HIGH AFT X-TUBE ASSEMBLY
Job Number :	25992		
Estimate Number :	10257		
P.O. Number :		Part Number :	D212664201
This Issue :	2/27/2006	S.O. No. :	
Prsht Rev. :	NC	Drawing Number :	D212-664-241 REV B
First Issue :	1/1	Project Number :	N/A
Previous Run :	25991	Drawing Revision :	B
	Type :	Material :	
	LANDING GEAR	Due Date :	3/20/2006
Written By :		Qty:	1
Checked & Approved By :		Um:	Each
Comment :	Est Rev:E 04.02.16 Reformat K/DS		

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description:
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1.0 DC

DOCUMENT CONTROL

**Comment:** DOCUMENT CONTROL

Photocopy bluefile and create labels as per PPP D212-664-201CHG002

2.0 D6006129

Crosstube material

**Comment:** Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part number Description Batch

1 D6006-129 Crosstube B23870

Check OD = 3.250"; ID = 2.220"

M8 06/03/09

3.0

MORI SEIKI

MORI SEIKI CNC LATHE LARGE

**Comment:** MORI SEIKI CNC LATHE LARGE

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA114 M8 06/03/09

2-Turn first side as per Folio FA114

M8 06/03/09

3-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D212-664-241. M8 06/03/09

4.0

QC1

INSPECT ALL DIM TO DIM SHEET

**Comment:** INSPECT ALL DIM TO DIM SHEET

M8 06/03/09

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

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Seq. #:

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Description :

5.0

MORI SEIKI

MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

1-Turn second side as per Folio FA114

M8 06/03/09

2-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D212-664-241. M8 06/03/09

6.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

M8 06/03/09

7.0

QC8

SECOND CHECK



Comment: SECOND CHECK

M8 06/03/09

8.0

MORI SEIKI

MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

1-Polish entire outside surface of crosstube

M8 06/03/09

2-Remove sand and plugs

M8 06/03/09

3-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-241 M8 06/03/09

9.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1 within 24 hours of machining

M8 06/03/17 (1)

10.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

DP 06-3-18

(1)

11.0

BENDING

BENDING MACHINE



Comment: BENDING MACHINE

Bend tube as per Dwg D212-664-241 using CNC bender program 212-af and Folio FT007

DP 06-3-20 (1)



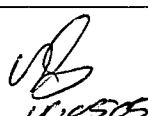

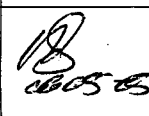
M8

Dart Aerospace Ltd

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06320	11	overbent by a total of 1"		scrap & give Joerg.	 06320	 060505	 060505	 060505

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Drawing Name: 212/205 HIGH AFT X-TUBE ASSEMBLY

Job Number: 25992

Part Number: D212664201

Job Number:



Seq. #:

Machine Or Operation:

Description :

12.0

QC6

DIMENSIONAL CHECK



Comment: DIMENSIONAL CHECK

13.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Drill pilot holes in tube as per Dwg D212-664-241 using drill Jig DT8550 & DT8551

2-Ream hole to finish size in tube as per Dwg D212-664-241 using drill Jig DT8550 & DT8551. Check dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes.

3-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D212-664-241

14.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1 within 24 hours of bending and drilling

15.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

16.0

OUTSIDE SERVICE

OUTSIDE SERVICES



Comment: Sub-Contracting OUTSIDE SERVICES

Liquid Penetrant Inspection as per QSI 038

Issue P/O: _____

LPI as per ASTM 1417 Level 2

Attach copy of NDT results to work order

17.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Inspect for transit damage Ensure copy of NDT results attached to work order.

18.0

QC6

DIMENSIONAL CHECK



Comment: DIMENSIONAL CHECK

Inspect for damage & ensure results are as per Dwg D212-664-241

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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Job Number: 25992

Part Number: D212664201

Job Number:



Seq. #:	Machine Or Operation:	Description :
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19.0	SPRAY PAINTING	SPRAY PAINTING
------	----------------	----------------



Comment: SPRAY PAINTING

1-Prime inside and outside crosstube as per QSI 005 4.2

2-Paint outside crosstube with White Imron as per QSI 005 4.2

20.0	QC14	Inspect Spray Paint
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Comment: Inspect Spray Paint

Then, Wrap in plastic bag to protect from scratches

21.0	D2856600	Abrasion Strip
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Comment: Qty.: 0.8400 f(s)/Unit Total : 0.8400 f(s)

Pick:

Qty Part number Description Batch

2 D2856-600-1009 Abrasion Strip _____

22.0	D29401	Support
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Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part number Description Batch

2 D2940-1 Support _____

23.0	MS2192028	Clamp
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Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Pick:

Qty Part number Description Batch

4 MS21920-28 Clamp _____

24.0	LANDING GEAR 1	LANDING GEAR RESOURCE 1
------	----------------	-------------------------



Comment: LANDING GEAR RESOURCE 1

1-Install abrasion strips as per QSI 035 using DT8582

2-Install supports and clamps as per Dwg D212-664-241. Torque clamps to 80-100 in lb.

W/O:		WORK ORDER CHANGES					
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Part Number: D212664201

Job Number:



Seq. #:	Machine Or Operation:	Description :
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25.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

26.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Pick Packing Kit

27.0

D34281

Placard



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick: Packing Kit

Qty Part number Description Batch

1 D3428-1 PLACARD

28.0

AN640A

Bolt



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Pick: Packing Kit

Qty Part number Description Batch

4 AN6-40A Bolt

29.0

AN641A

Bolt



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick: Packing Kit

Qty Part number Description Batch

4 AN6-41A BOLT

30.0

AN960JD616

Washer



Comment: Qty.: 18.0000 Each(s)/Unit Total : 18.0000 Each(s)

Pick: Packing Kit

Qty Part number Description Batch

16 AN960JD616 Washer

31.0

MS21042L6

Nut



Comment: Qty.: 6.0000 Each(s)/Unit Total : 6.0000 Each(s)

Pick: Packing Kit

Qty Part number Description Batch

6 MS21042L6 Nut (or -6)

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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Job Number: 25992

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Job Number:



Seq. #:

Machine Or Operation:

Description :

32.0

QC4

INSPECT 100% KITS FOR COMPLETENESS



Comment: INSPECT 100% KITS FOR COMPLETENESS

33.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Identify and pack for shipping as per PPP D212-664-201

34.0

DC

DOCUMENT CONTROL



Comment: DOCUMENT CONTROL

Inspection Level 21

Job Completion



W doo504

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order:	25992
Description: Crosstube Assembly (205/212 High Aft)		Part Number:	D212-664-241
Inspection Dwg: D212-664-241 Rev: A3 <i>PH 05.02.28</i>		Page 1 of 1	

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

Inspection Sheet Drawing Dimension		Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.200	+/-0.010	.200	✓			
	R0.063	+/-0.010	R.063	✓			
	2.990	+0.005/-0.000	2.993	✓			
	5.237 <i>PH 05.02.28 +/-0.001 +/-0.030</i>	+0.005/-0.000	5.260	✓			
	2.600	+0.005/-0.000	2.603	✓			
	2.686	+0.005/-0.000	2.690	✓			
	2.770	+0.005/-0.000	2.773	✓			
	2.854	+0.005/-0.000	2.858	✓			
	2.938	+0.005/-0.000	2.942	✓			
	3.021	+0.005/-0.000	3.024	✓			
	3.133	+0.005/-0.000	3.137	✓			
	3.179	+0.005/-0.000	3.182	✓			
SIDE B	0.200	+/-0.010	.200	✓			
	R0.063	+/-0.010	R.063	✓			
	2.990	+0.005/-0.000	2.993	✓			
	5.237 <i>PH 05.02.28 +/-0.001 +/-0.030</i>	+0.005/-0.000	5.245	✓			
	2.600	+0.005/-0.000	2.604	✓			
	2.686	+0.005/-0.000	2.690	✓			
	2.770	+0.005/-0.000	2.774	✓			
	2.854	+0.005/-0.000	2.858	✓			
	2.938	+0.005/-0.000	2.942	✓			
	3.021	+0.005/-0.000	3.025	✓			
	3.133	+0.005/-0.000	3.137	✓			
	3.179	+0.005/-0.000	3.182	✓			
	124.36	+/-0.020	124.375	✓			

Measured by:	MS	Audited by:	EP	Prototype Approval:	N/A
Date:	06/03/09	Date:	06/03/09	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	05.04.27	New Issue (P/O D412-664-201)	KJ/JLM	



DESIGN PH	DRAWN BY PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED [Signature]	APPROVED [Signature]	DRAWING NO. D212-664-241	REV. B SHEET 1 OF 3
DATE 05.02.04		TITLE CROSSTUBE ASS'Y (205/212 HI AFT) NTS	
A	00.12.12	NEW ISSUE	
B	05.02.04	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	

RELEASED
05.06.09 [Signature]

Qty	Part Number	Description
X	D212-664-241	CROSSTUBE ASSEMBLY (205/212 HIGH AFT)
1	D6006-129	CROSSTUBE
2	D2940-1	SUPPORT
2	D2856-600-1009	ABRASION STRIP
4	MS21920-28	CLAMP

GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) MATERIAL: MANUFACTURED FROM D6006-129
FINISHED LENGTH = 124.36±0.020
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 5 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2856-600-1009 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D2940-1 SUPPORT, PER QSI 035.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) IT IS OPTIONAL TO SEAL EDGES OF SUPPORTS AND ABRASION STRIP USING SIKAFLEX-241/291 SEALANT.
- 12) TORQUE CLAMPS 80 TO 100 IN-LB.

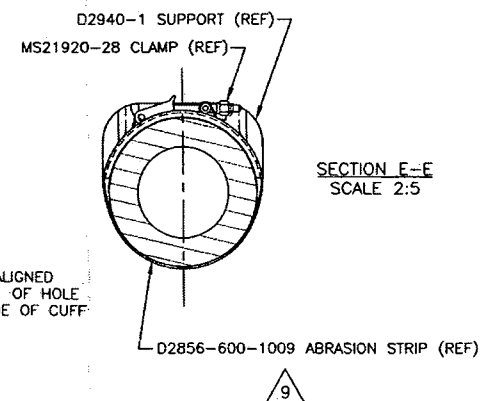
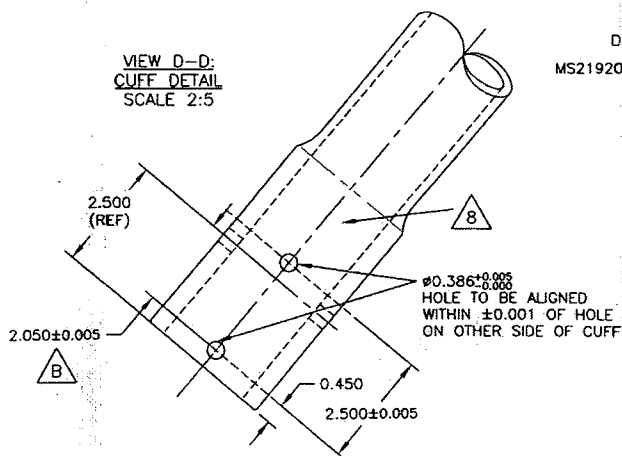
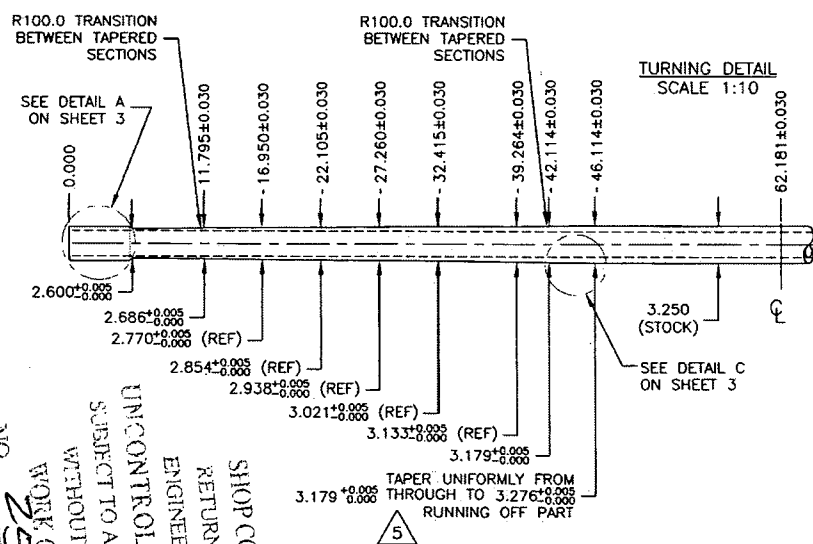
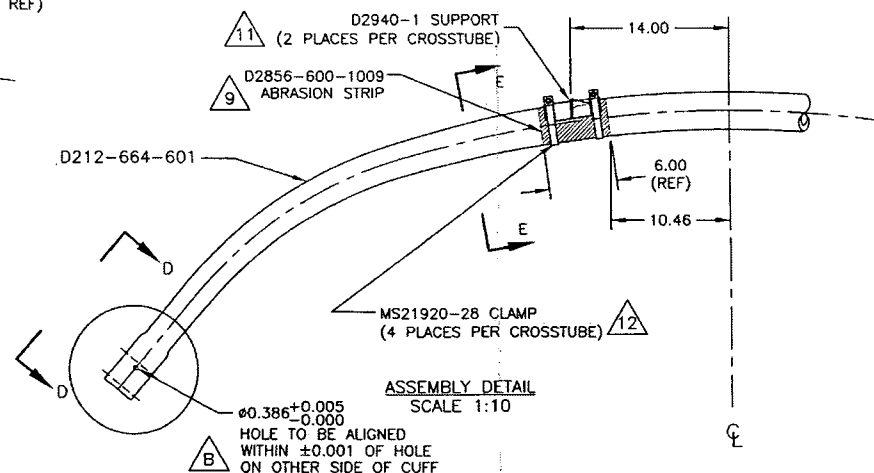
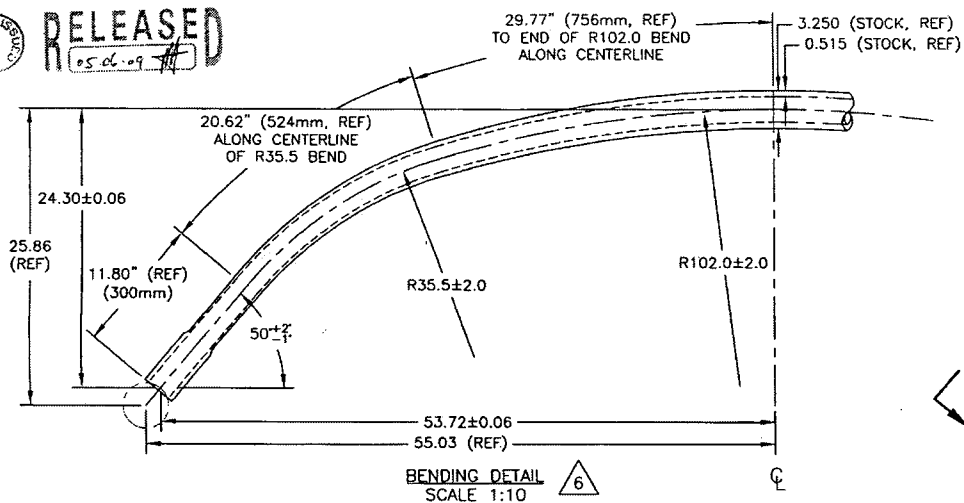
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WORK ORDER
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05.02.04



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		DATE	05.02.04			D212-664-241	SHEET 2 OF 3
						TITLE	SCALE
						CROSSTUBE ASS'Y (205/212 HI AFT)	1:10

NO. 25942

WORK ORDER

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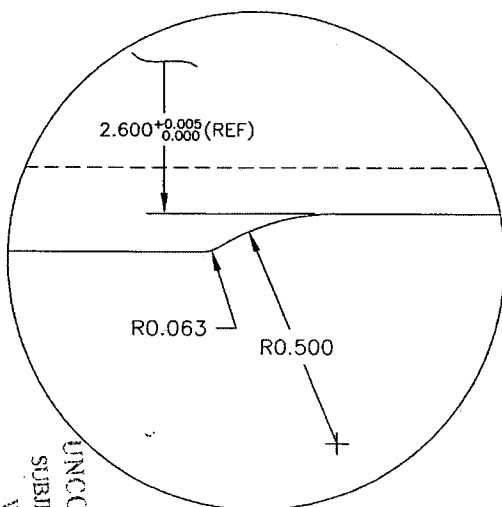
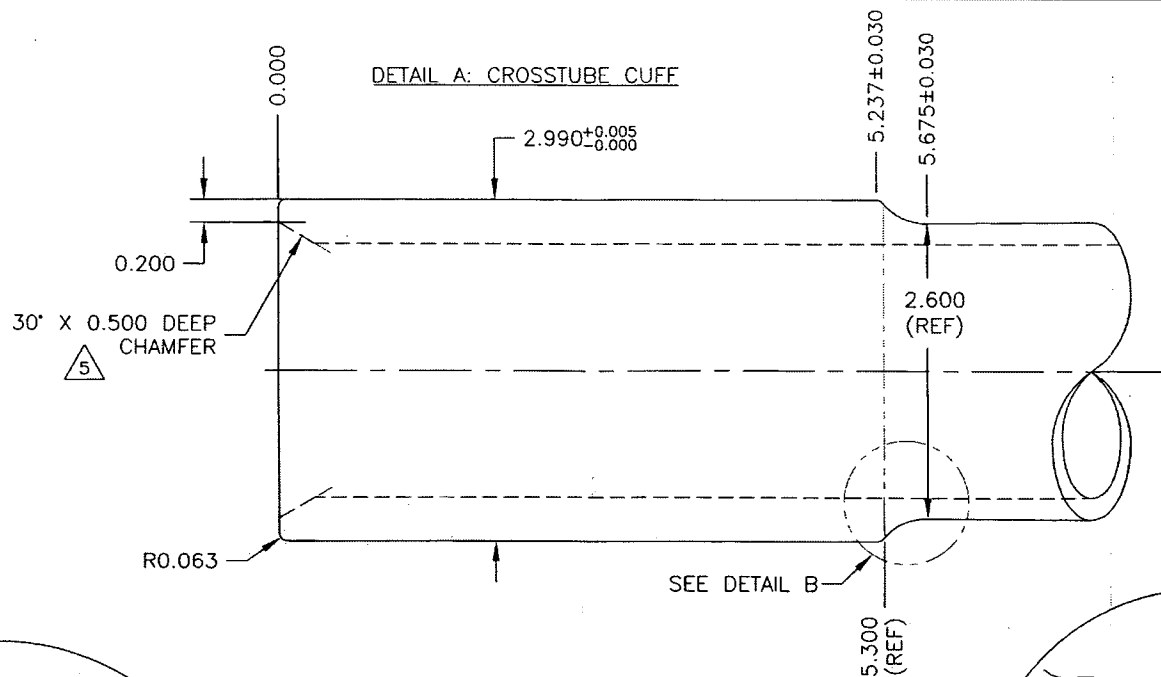
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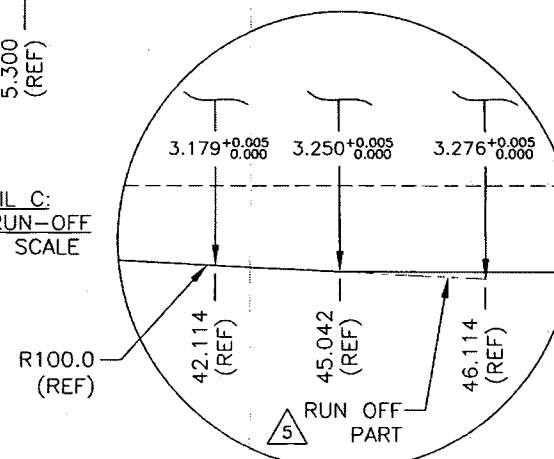
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DETAIL C:
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DATE 05.02.04		TITLE CROSSTUBE ASS'Y (205/212 HI AFT)		SCALE 1:1	

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